Module 2

The Nuclear Professional

September 28, 2009 **1:00 – 3:00**

NUCLEAR EXECUTIVE
LEADERSHIP TRAINING

NUCLEAR EXECUTIVE LEADERSHIP TRAINING

The Nuclear Professional

Alfred C. Tollison, Jr.

Alfred (Fred) C. Tollison, Jr. retired on March 31, 2006 from the Institute of Nuclear Power Operations (INPO)* in Atlanta, Georgia, where he was chairman of the INPO Board of Directors from March 30, 2005 to March 8, 2006.

Prior to becoming chairman, he served as president and chief executive officer, a position he assumed on February 18, 2004. Previous responsibilities include the Events Analysis and Information Exchange cornerstone, industry and government relations, communications, information systems, and administrative activities. He also had responsibility for the Training and Accreditation cornerstone, serving as the executive director of the National Academy for Nuclear Training. He was elected executive vice president in 1996, senior vice president in 1995, and vice president in 1989. Other previous positions include managing the Plant Evaluation, Plant Operations, and Training Support divisions.

Mr. Tollison joined INPO in August 1987 after a 17-year career with Carolina Power & Light Company (CP&L). He served in a variety of management positions with CP&L, including plant manager of the Brunswick Steam Electric Plant and manager of nuclear training. In an on-loan assignment from 1981-1983, Mr. Tollison served as director of INPO's Evaluation and Assistance Division.

Mr. Tollison served as an officer aboard nuclear submarines in the U.S. Navy from 1964 to 1970 and retired as a captain in the Navy Reserve. He received a bachelor's degree in chemical engineering from the University of South Carolina in 1964. He also completed Harvard Business School's Advanced Management Program in 1991. Honors include the World Association of Nuclear Operators Nuclear Excellence Award in October 2005 and the American Nuclear Society Future Vision Award in February 2004.

Currently, Mr. Tollison serves on the Board of Directors of Progress Energy, and on the Nuclear Oversight Committee for Palo Verde Nuclear Generating Station, operated by Arizona Public Service Company.

**INPO, sponsored by the nuclear industry, is an independent, nonprofit organization whose mission is to promote the highest levels of safety and reliability -- to promote excellence -- in the operation of nuclear electric generating plants.*

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Amazon.com

Calculus	**8,000**
Leadership / mgmt.	**335,000**

Agenda

- Special Nature of Nuclear Power---*The Nuclear Professional*
- Application of Standards
- Effect of Procedures
- Erosion of the Work Environment

Cumulative Reactor-Years

13,800	*September 2009*
10,500	Davis-Besse, PAKS, JCO, *2002*
4,020	Chernobyl, *1986*
1,730	TMI, *1979*

Final Exam

NUCLEAR EXECUTIVE LEADERSHIP TRAINING

1. In one 18-month operating cycle of a commercial nuclear reactor, how much mass is converted to energy? (Hint: $E=mc^2$; Reactor power ~3,000 MW_t; BOL UO_2 mass ~200,000 lbs)

2. What is actual core damage frequency in commercial nuclear reactors? (Hint: World-wide reactor years to date=~13,800)

Solutions

NUCLEAR EXECUTIVE LEADERSHIP TRAINING

$m = E/c^2$

$= [(3{,}000mw_t)(12{,}000hr)(3.6x10^9 J/mw\text{-}hr)/(1.9x10^5 mi/sec)^2][Conv.\ factors]$

$= \sim 1.5\ kg = \sim 3\ lb$

CDF = 2 core damage events / 13,800 reactor-years

$= 1.45 \times 10^{-4}$ / reactor-year

= 6.5 x 10-2 / calendar-year

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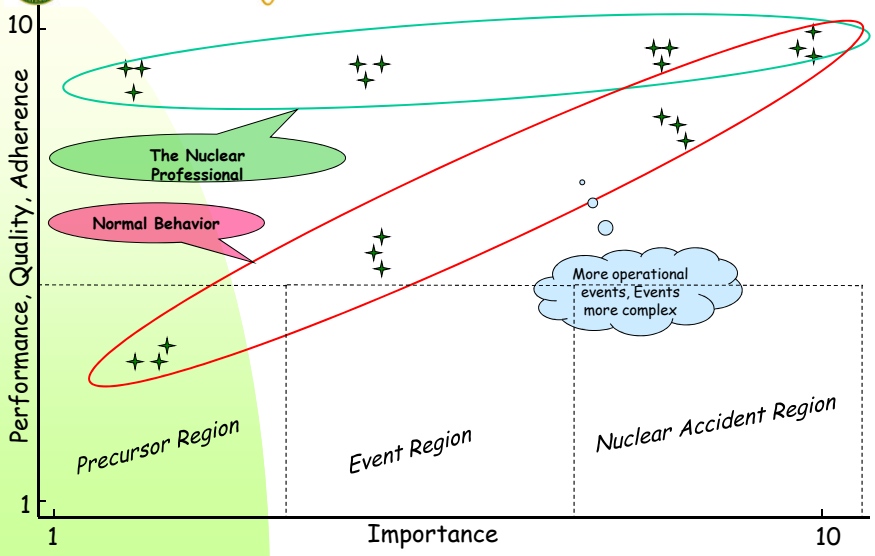
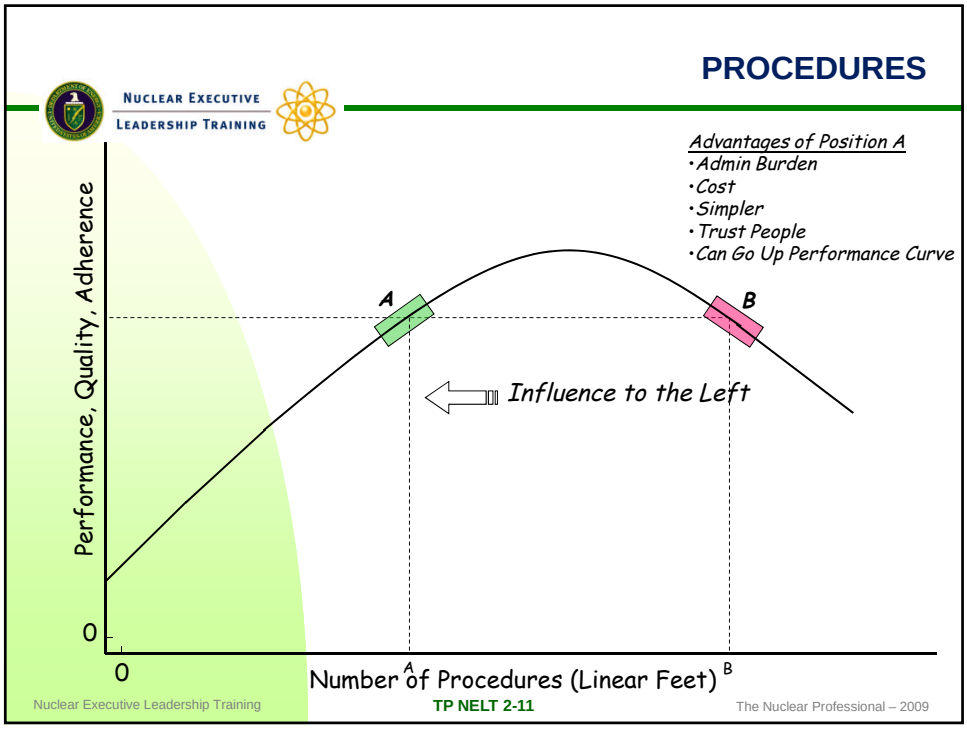
APPLICATION OF STANDARDS

NUCLEAR EXECUTIVE LEADERSHIP TRAINING




PROCEDURES
NUCLEAR EXECUTIVE
LEADERSHIP TRAINING
Advantages of Position A
•Admin Burden
•Cost
•Simpler
•Trust People
•Can Go Up Performance Curve
A
B
Influence to the Left
Performance, Quality, Adherence
0
0
A
B
Number of Procedures (Linear Feet)
Nuclear Executive Leadership Training
TP NELT 2-11
The Nuclear Professional – 2009